WHAT IS CLAIMED IS:

1. A microproportioning system, comprising:

- a reservoir;

- a micro-diaphragm pump having an entrance connected to the reservoir;

- a proportioning port connected to an exit of the micro-diaphragm pump;

- a proportioning control means which is in an operative communication with the micro-diaphragm pump; and

- a common printed circuit board;

- wherein the micro-diaphragm pump and the reservoir are combined to form one constructional element exchangeably connected to an actuator module in one of a microsystem technology and hybrid technology; and

- wherein at least two components of the microproportioning system selected from the group consisting of proportioning controls means, a display, and an operating means are accommodated on the common printed-circuit board.

2. The system according to claim 1, wherein the printed-circuit board is disposed in a middle region of the actuator module.

3. A microproportioning system, comprising:

- a reservoir;

- a micro-diaphragm pump having an entrance connected to the reservoir;

- a proportioning port connected to an exit of the micro-diaphragm pump;

- a proportioning control means which is in an operative communication with the micro-diaphragm pump; and

- an actuator module;

- wherein the micro-diaphragm pump and the reservoir are combined to form one constructional element exchangeably connected to the actuator module in one of a microsystem technology and hybrid technology; and

- wherein a power supply is accommodated in a head region of the actuator module.

4. A microproportioning system, comprising:

- a reservoir;

- a micro-diaphragm pump having an entrance connected to the reservoir;

- a proportioning port connected to an exit of the micro-diaphragm pump; and

- a proportioning control means operationally communicating with micro-diaphragm pump for controlling operation of the micro-diaphragm pump in one of two opposite pumping directions to thereby control displacement of an auxiliary liquid column from the reservoir for suction of liquid through the proportioning port and an expulsion of liquid from the proportioning port;

- wherein the proportioning control means controls a proportioned volume by controlling the displacement of the auxiliary liquid column along a distance between two sensors which are in an operative communication with the proportioning control means,

- wherein the distance between the two sensor corresponds to the proportioned volume and is adjustable one of manually and by a mechanical drive, and the two sensors detect meniscus of the auxiliary liquid column along a displacement length, and

- wherein the mechanical drive includes a screw having a servo-drive and a screw nut, with one of the two sensors being mounted on the screw.

5. A microproportioning system, comprising:

- a reservoir with a to-be-metered liquid;

- a micro-diaphragm pump having an entrance connected to the reservoir;

- an open jet proportioner having an entrance connected to an exit of the micro-diaphragm pump;

- a proportioning port connected to an exit of the open jet proportioner; and

- a proportioning control means operatively communicating with the micro-diaphragm pump and the open-jet proportioner,

- wherein the reservoir is provided with at least one component of the microproportioning system selected from the group consisting of cooling means and a heat insulation for the to-be-metered liquid.

6. A microproportioning system, comprising:

- a reservoir with a to-be-metered liquid;

- a micro-diaphragm pump having an entrance connected to the reservoir;

- an open jet proportioner having an entrance connected to an exit of the micro-diaphragm pump;

- a proportioning port connected to an exit of the open jet proportioner;

- a proportioning control means operatively communicating with the micro-diaphragm pump and the open-jet proportioner; and

- a heating means provided at least in one of the components of the microproportioning system selected from the group consisting of the micro-diaphragm pump, the open jet proportioner, and connecting lines for heating the to-be-metered liquid.

7. A microproportioning system, comprising.

- a reservoir with an auxiliary liquid;

- a micro-diaphragm pump having an entrance connected to the reservoir;

- a proportioning port connected to an exit of the micro-diaphragm pump; and

- a proportioning control means operatively communicating with the micro-diaphragm pump for controlling displacement of an auxiliary liquid column from the reservoir for effecting one of suction of the liquid through the proportioning port and expulsion of liquid from the proportioning port by controlling an operation of

the micro-diaphragm pump in one of first direction in which the micro-diaphragm pump pumps the liquid from the reservoir, and second opposite direction in which the liquid is sucked into the reservoir, at least partially;

- wherein the proportioning control means is adapted to control a volume being proportioned by controlling a stroke volume of the micro-diaphragm pump; and

- wherein the proportioning control means is adapted to determine the volume being proportioned on basis of calibration of the stroke volume that it establishes by displacing an auxiliary liquid column by the micro-diaphragm pump along with a calibration length between two sensors operatively connected with the proportioning control means for detection of meniscus of an auxiliary liquid column.

8. A microproportioning system comprising:

- a reservoir with a to-be-metered liquid;

- a micro-diaphragm pump having an entrance connected to the reservoir;

- an open jet proportioner having an entrance connected to an exit of the micro-diaphragm pump;

- a proportioning port connected to an exit of the open jet proportioner; and

- a proportioning control means operatively communicating with the micro-diaphragm pump and the open-jet proportioner;

- wherein the reservoir has a capillary balance system.

9. A microproportioning system comprising:

- a reservoir with a to-be-metered liquid;

- a micro-diaphragm pump having an entrance connected to the reservoir;

- an open jet proportioner connected in series with the micro-diaphragm pump and having an entrance thereof connected to an exit of the micro-diaphragm pump;

- a proportioning port connected to an exit of the open jet proportioner; and

- a proportioning control means operatively communicating with the micro-diaphragm pump and the open-jet proportioner.

10. The system according to claim 9, wherein the proportioning control means, for filling the open jet proportioner with the liquid from the reservoir, is adapted to place the open jet proportioner in an non-operative state and to control the micro-diaphragm pump so that it pumps the liquid in a first direction from the reservoir into the open jet proportioner.

11. The system according to claim 9, wherein the micro-diaphragm pump is capable of pumping liquid in a first direction in which it pumps liquid from the reservoir, and in a second direction in which it pumps liquid in

the reservoir, and wherein for ~~filing~~ filling the open jet proportioner, the micro-diaphragm pump, and the reservoir at least partially with liquid through the proportioning port, the proportioning control means is adapted to place the open jet proportioner in a non-operative state, and to actuate the micro- diaphragm pump so that it is capable of pumping liquid in the second direction opposite the first direction.

12. The system according to claim 9, wherein the proportioning control means is adapted to place the micro-diaphragm pump into a non-operative state for delivery of liquid from the proportioning port in form of an open jet.

13. The system according to claim 12, wherein the proportioning control means is adapted to place the micro-diaphragm pump into an non-operative state for delivery of liquid in form of an open jet.

14. The system according to claim 12, wherein the proportioning control means is adapted to control a volume being proportioned for delivery in form of an open jet by controlling a displacement volume of the open-jet proportioner.

15. The system according to claim 12, wherein the proportioning control means is adapted to control a volume being proportioned for delivery in form of open jet by controlling one of a stroke volume and stroke volumes of the micro-diaphragm pump when filling the open-jet proportioner.

16. The system according to claim 9, wherein the proportioning control means is adapted to place the open jet proportioner in a non-operative state and to control the micro-diaphragm pump so that it pumps liquid out of the proportioning port, draining the proportioning port.

17. The system according to claim 16, wherein the proportioning control means is adapted to control a volume being proportioned of the liquid being drained by controlling one of stroke volume and stroke volumes of the micro-diaphragm pump.

18. The system according to claim 9, wherein the proportioning control means is adapted to control displacement of an auxiliary liquid column from the reservoir for effecting one of the suction of liquid via the proportioning port and expulsion of liquid from the proportioning port by

controlling operation of the micro-diaphragm pump in one of first direction in which the micro-diaphragm pump pumps liquid from the reservoir, and second direction opposite to the first direction, and by placing the open-jet proportioner into a non-operative position thereof.

19. The system according to claim 18 wherein the proportioning control means is adapted to control a volume of a suction liquid and expulsion liquid by controlling one of a stroke volume and stroke volumes of the micro-diaphragm pump.

20. The system according to claim 9, wherein at least two components of the system selected from the group comprising ~~of~~ the micro-diaphragm pump, the open jet proportioner, the reservoir, and proportioning control means are combined to form one constructional element in one of microsystem technology or hybrid technology.

21. The system according to claim 9, wherein the proportioning port is formed by a nozzle.

22. The system according to claim 9, wherein the proportioning port is formed at an exchangeable pipette tip.

23. The system according to claim 9, wherein there is provided a constructional element exchangeably connected to an actuator module.

24. The system according to claim 9, wherein the reservoir is connected to an entrance of the open jet proportioner via a feeding capillary.

25. The system according to claim 9, further comprising a system component selected from the group consisting of mechanical closure and fluid-based closure and provided between the reservoir and the proportioning port.

26. The system according to claim 9, comprising several ducts connected with one reservoir or several reservoirs.

27. The system according to claim 9, formed as a portable unit.

28. The system according to Claim 9, wherein the reservoir is precharged with liquid.

29. A microproportioning system including:

- a reservoir with a to-be-metered liquid;

- at least one system component selected from the group comprising a micro-diaphragm pump having an entrance connectable to the reservoir and an open jet proportioner having an entrance connectable to one of an exit of the micro-diaphragm pump and to the reservoir;

- a proportioning port connected to an exit of the at least one of the micro-diaphragm pump and the open jet proportioner;

- a proportioning control means operative by communicating with the at least one of the micro-diaphragm pump and the open jet proportioner; and

- wherein the reservoir and at least one of the micro-diaphragm pump and the open jet proportioner are combined to form one constructional element exchangeably connected to an actuator module in one of microsystem technology and hybrid technology.

30. The system according to claim 29, wherein the proportioning control means is adapted to control a volume being proportioned by controlling a stroke volume of the micro-diaphragm pump.

31. A microproportioning system comprising:

- a reservoir with a to-be-metered liquid;

- at least one system component selected from the group consisting of a micro-diaphragm pump having an entrance connectable to the reservoir, and an open jet proportioner having an entrance connectable to one of an exit of the micro-diaphragm pump and to the reservoir;

- a proportioning port connected to an exit of the at least one of the micro-diaphragm pump and the open jet proportioner;

- a proportioning control means operative by communicating with at the least one of the micro-diaphragm pump and the open jet proportioner;

- wherein the reservoir and at least one of a micro-diaphragm pump and an open jet proportioner are combined to form one constructional element exchangeably connected to an actuator module in one of microsystem technology and hybrid technology; and

- wherein the proportioning control means is connected to a sensor for detection of meniscus of the liquid at the beginning of a displacement length of the liquid for adjustment of an initial position for displacement of a liquid column.

32. The system according to claim 31, wherein the sensor is associated with a dispensing tube for the liquid.

33. The system according to claim 32, wherein the dispensing tube is connected to a constructional element.

34. The system according to claim 33, wherein the constructional element is exchangeably connected to a base region of an actuator module.

35. The system according to claim 34, wherein the proportioning control means is permanently connected to the actuator module, and the constructional element is separably connected to the proportioning control means by an electric contact.

36. The system according to claim 34, wherein a sensor is permanently connected to the actuator module.

37. The system according to claim 34, wherein a power supply is accommodated in a head region of the actuator module.

38. A microproportioning system, comprising:

- a reservoir with an auxiliary liquid;
- a micro-diaphragm pump having an entrance connected to the reservoir;
- a proportioning port connected to an exit of the micro-diaphragm pump; and

- a proportioning control means operatively communicating with the micro-diaphragm pump for controlling displacement of an auxiliary liquid column from the reservoir for effecting one of suction of the liquid through the proportioning port and expulsion of liquid from the proportioning port by controlling an operation of the micro-diaphragm pump in one of first direction in which the micro-diaphragm pump pumps the liquid from the reservoir, and second opposite direction in which the liquid is sucked into the reservoir, at least partially.

39. The system according to claim 38, wherein the proportioning control means is adapted to control a volume being proportioned by controlling a stroke volume of the micro-diaphragm pump.

40. The system according to claim 38, wherein at least two system components selected from the group comprising the micro-diaphragm pump, the reservoir, and the proportioning control means are combined to form a constructional element in one of microsystem technology and hybrid technology.

41. A microproportioning system comprising:

- a reservoir with a to-be-metered liquid;

- at least one system component selected from the group consisting of a micro-diaphragm pump having an entrance connectable to the reservoir, and an open jet proportioner having an entrance connectable to one of an exit of the micro-diaphragm pump and the reservoir;

- a proportioning port connected to an exit of the at least one of the micro-diaphragm pump and the open jet proportioner;

- a proportioning control means operative by communicating with at the least one of the micro-diaphragm pump and the open jet proportioner;

- a common printed circuit board; and

- an actuator module;

- wherein the reservoir and at least one of a micro-diaphragm pump and an open jet proportioner are combined to form one constructional element exchangeably connected to the actuator module in one of microsystem technology and hybrid technology; and

- wherein at least one system component selected from the group comprising the proportioning control means, display, and operating means is accommodated on the common printed-circuit board.

42. A microproportioning system, comprising:

- a reservoir with an auxiliary liquid;

- a micro-diaphragm pump having an entrance connected to the reservoir;

- a proportioning port connected to an exit of the micro-diaphragm pump; and

- a proportioning control means operatively communicating with the micro-diaphragm pump for controlling displacement of an auxiliary liquid column from the reservoir for effecting one of suction of the liquid through the proportioning port and expulsion of liquid from the proportioning port by controlling an operation of the micro-diaphragm pump in one of first direction in which the micro-diaphragm pump pumps the liquid from the reservoir, and second opposite direction in which the liquid is sucked in the reservoir, at least partially;

- wherein the proportioning control means is connected to sensors for detection of meniscus of the liquid at beginning of a displacement length of the liquid for adjustment of an initial position for displacement of an auxiliary liquid column.